UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/052,699	01/17/2002	Marco Paniconi	80398.P496	1374

7590   08/18/2004

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EXAMINER
RAO, ANAND SHASHIKANT

ART UNIT	PAPER NUMBER
2613	

DATE MAILED: 08/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/052,699	PANICONI ET AL.
	Examiner	Art Unit	
	Andy S. Rao	2613	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-21* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-21* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date *9/29/03*.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Specification

1.   The specification has not been checked to the extent necessary to determine the

presence of all possible minor errors. Applicant's cooperation is requested in correcting

any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.
>
> (c) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act

of 1999 (AIPA) and the Intellectual Property and High Technology Technical

Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting

directly or indirectly from an international application filed before November 29, 2000.

Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior

to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3.   Claims 1-21 are rejected under 35 U.S.C. 102(e) as being anticipated by

Sethuraman et al., (hereinafter referred to as "Sethuraman").

Sethuraman discloses a method (Sethuraman: figures 3-5) comprising: identifying a plurality of motion classes (Sethuraman: column 11, lines 1-20) for a frame of video data (Sethuraman: column 3, lines 45-67; column 4, lines 1-10), each motion class having at least one region classified thereto (Sethuraman: column 8, lines 45-55); determining a region to be a poorly classified region forming a set of class hypotheses for the poorly classified region (Sethuraman: column 8, lines 55-67), the set of class hypotheses containing at least one possible motion class (Sethuraman: column 14, lines 18-21); determining a similarity measure for the poorly classified region with respect to a set of past and future video data (Sethuraman: column 14, lines 13-15), the similarity measure indicating a degree of similarity or consistency between a hypothesis for the motion of the poorly classified region and the motion of the corresponding regions in past and future frames (Sethuraman: column 8, lines 60-67); and reclassifying the poorly classified region to one of the at least one possible motion classes according to the similarity measure (Sethuraman: column 9, lines 50-67), as in claim 1.

Regarding claim 2, Sethuraman discloses the set of past and future video data comprises: at least one preceding frame of video data; and at least one succeeding frame of video data (Sethuraman: column 7, lines 5-20), as in the claim.

Regarding claims 3-5, Sethuraman discloses reclassifying according to the similarity measure includes: determining which of the at least one possible motion classes are suitable for the poorly classified region using the similarity measure (Sethuraman: column 14, lines 13-30), as in the claims.

Regarding claim 6, Sethuraman discloses that determining a region to be a poorly classified region comprises: measuring the distortion of a region, comparing the

measured distortion of the reason to a distortion threshold (Sethuraman: column 11, lines 55-67; column 12, lines 1-17); and determining the region to be poorly classified (Sethuraman: column 14, lines 13-23) if the measured prediction is greater than the prediction error threshold (Sethuraman: column 9, lines 5-21), as in the claim.

Regarding claim 7, Sethuraman discloses that determining a region to be a poorly classified region comprises: measuring the prediction error of a region, comparing the measured prediction error of the region to a prediction error threshold (Sethuraman: column 11, lines 55-67; column 12, lines 1-7); and determining the region to be poorly classified (Sethuraman: column 14, lines 13-23) if the measured prediction is greater than the prediction error threshold (Sethuraman: column 9, lines 5-21), as in the claim.

Regarding claim 8, Sethuraman discloses that the reclassification of a poorly classified region in an image comprises finding the minimum of a measure over all class a hypotheses equation as specified (Sethuraman: column 14, lines 10-25), as in the claim.

Sethuraman discloses a computer-readable medium comprising computer program instructions which (Sethuraman: column 3, lines 15-20), when executed by a processor, cause the processor to perform they hypothesis algorithm (Sethuraman: column 14, lines 10-25) comprising: identifying a plurality of motion classes (Sethuraman: column 11, lines 1-20) for a frame of video data (Sethuraman: column 3, lines 45-67; column 4, lines 1-10), each motion class having at least one region classified thereto (Sethuraman: column 8, lines 45-55); determining a region to be a poorly classified region forming a set of class hypotheses for the poorly classified region (Sethuraman: column 8, lines 55-67), the set of class hypotheses containing at least one

possible motion class (Sethuraman: column 14, lines 18-21); determining a similarity measure for the poorly classified region with respect to a set of past and future video data (Sethuraman: column 14, lines 13-15), the similarity measure indicating a degree of similarity or consistency between a hypothesis for the motion of the poorly classified region and the motion of the corresponding regions in past and future frames (Sethuraman: column 8, lines 60-67); and reclassifying the poorly classified region to one of the at least one possible motion classes according to the similarity measure (Sethuraman: column 9, lines 50-67), as in claim 9.

Regarding claim 10, Sethuraman discloses that the computer readable medium has the set of past and future video data comprises: at least one preceding frame of video data; and at least one succeeding frame of video data (Sethuraman: column 7, lines 5-20), as in the claim.

Regarding claim 11, Sethuraman discloses that the computer readable medium has determining a region to be a poorly classified region comprises: measuring the distortion of a region, comparing the measured distortion of the region to a distortion threshold (Sethuraman: column 11, lines 55-67; column 12, lines 1-17); and determining the region to be poorly classified if the measured prediction is greater than the prediction error threshold (Sethuraman: column 9, lines 5-21), as in the claim.

Regarding claim 12, Sethuraman discloses that the computer readable medium has determining a region to be a poorly classified region comprises: measuring the prediction error of a region, comparing the measured prediction error of the region to a prediction error threshold (Sethuraman: column 11, lines 55-67; column 12, lines 1-17);

and determining the region to be poorly classified if the measured prediction is greater than the prediction error threshold (Sethuraman: column 9, lines 5-21), as in the claim.

Sethuraman discloses a video device (Sethuraman: figure 1) comprising: means for forming a set of class hypotheses for a region of a frame of video data (Sethuraman: column 14, lines 18-22); means for determining a similarity measure for the region with respect to a set of past and future video data (Sethuraman: column 14, lines 13-15); and means for reclassifying the region according to the similarity measure (Sethuraman: column 9, lines 50-60), as in claim 13.

Regarding claim 14, Sethuraman discloses that the device has wherein the set of past and future data comprises: at least one preceding frame of video data; and at least one succeeding frame of video data (Sethuraman: column 9, lines 50-67), as the claim.

Regarding claim 15, Sethuraman discloses that the device further comprises: means for determining a region to be poorly classified by a) measuring the distortion of a reason, b) comparing the measured distortion of the region to a distortion threshold (Sethuraman: column 11, lines 55-67; column 12, lines 1-17), and c) determining the region to be poorly classified if the measured prediction is greater than the prediction error threshold (Sethuraman: column 9, lines 5-21), as in the claim.

Regarding claim 16, Sethuraman discloses that the device further comprises: means for determining a region to be poorly classified by a) measuring the prediction error of a region, b) comparing the measured prediction error of the region to a prediction error threshold (Sethuraman: column 11, lines 55-67; column 12, lines 1-17), and c) determining the region to be poorly classified if the measured prediction is greater than the prediction error threshold (Sethuraman: column 9, lines 5-21), as in the claim.

Sethuraman discloses a video device (Sethuraman: figure 1) comprising: a motion

compensation component (Sethuraman: column 3, lines 30-47) configured to form a set

of class hypotheses for a region of a frame of video data (Sethuraman: column 14, lines

18-21), to determine a similarity measure (Sethuraman: column 14, lines 13-15) for the

region with respect to a set of past and future data (Sethuraman: column 7, lines 5-20),

and to reclassify the region according to the similarity measure (Sethuraman: column 9,

lines 50-67), as in claim 17.

Regarding claim 18 Sethuraman discloses that the device has the set of past and

future data comprises' at least one preceding frame of video data; and at least one

succeeding frame of video data (Sethuraman: column 7, lines 5-20), as in the claim.

Regarding claim 19, Sethuraman discloses that the device has wherein the region

is reclassified by finding a minimum similarity measure and assigning the region to a

class having the minimum similarity measure (Sethuraman: column 14, lines 13-15), as in

the claim.

Sethuraman discloses a method (Sethuraman: figures 3-5) comprising: performing

motion estimation for a frame (Sethuraman: column 3, lines 30-43; column 6, lines 30-

55)) containing a plurality of motion classes, each motion class having at least one region

classified thereto (Sethuraman: column 11, lines 1-15); identifying at least one poorly

classified region (Sethuraman: column 8, lines 45-67); selecting a new motion class for

each poorly classified region (Sethuraman: column 9, lines 1-20); reclassifying the poorly

classified region to the new motion class (Sethuraman: column 14, lines 22-27); and re-

estimating the poorly classified region based on a result of reclassifying the poorly

classified region (Sethuraman: column 12, lines 1-5), as in claim 20.

Regarding claim 21, Sethuraman discloses wherein reclassifying includes: using a

set of past and future data according to a hypothesis tracking algorithm (Sethuraman:

column 14, lines 13-21).

Conclusion

4.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure. Courtney discloses a motion based event detection system and

method. Martens discloses a method and apparatus for coordination of motion

determination. Guichard discloses an image frame fusion by velocity estimation using

region merging. Jain discloses machine dynamic selection. Moezzi discloses immersive

video.

5.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Andy S. Rao whose telephone number is (703)-305-4813.

The examiner can normally be reached on Monday-Friday 8 hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Chris S. Kelley can be reached on (703)-305-4856. The fax phone number

for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR. Status

information for unpublished applications is available through Private PAIR only. For

more information about the PAIR system, see http://pair-direct.uspto.gov. Should you

have questions on access to the Private PAIR system, contact the Electronic Business

Center (EBC) at 866-217-9197 (toll-free).

Andy S. Rao
Primary Examiner
Art Unit 2613

asr
August 11, 2004